FALSE POSITIVE SEROLOGICAL REACTIONS FOR SYPHILIS IN LEPROSY

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It was proposed at the serological laboratory for the Ceylon Army Command to study the incidence of false positive serological reactions for syphilis given by sera from cases of leprosy. This inquiry, however, had to be closed prematurely because of early demobilization of the unit. As it has not been possible for the writer to record further observations, the available data is tabulated below. Sixty-four specimens of blood from clinically non-syphilitic lepers were supplied by the superintendent of the leprosy hospital at Hendala, Ceylon.

Comment

The high incidence of false positive Wassermann and/or Kahn tests in this series of 64 lepers, as shown in Table I (overleaf), needs no comment as the

TABLE II

THE QUANTITATIVE TITRES WITH THE SERIAL DILUTIONS OF SERA WITH 0·9 PER CENT. SALINE IN FALSE POSITIVE TYPE OF REACTIONS IN DIFFERENT DISEASES

Disease	Total no. of cases	Titre of Kahn units*									
		1	2	3	4	20	40	80	120	160	240
Malaria	12	0	3	4	2	0	2	0	0	0	1
Small-pox vaccination	1	0	1	0	0	0	0	0	0	0	0
Eosinophilia	2	0	0	1	1	0	0	0	0	0	0
Leprosy	10	0	0	0	3	0	2	1	2	1	1

* The Kahn units in any serum that was positive on dilution were determined according to the formula S = 4 D, where S was the serum titre in terms of Kahn units and D was the highest dilution ratio giving a *4 plus* reaction. This was slightly different from the original method but was adopted by the U.S. Army with Kahn's approval as per Army Pathology laboratory service, current notes, No. 13, October, 1944.

TABLE III

THE QUANTITATIVE TITRES WITH THE SERIAL DILUTIONS OF SERA WITH DISTILLED WATER IN FALSE POSITIVE TYPE OF REACTIONS IN DIFFERENT DISEASES

Disease	Total no. of cases	Titre of Kahn units									
		1	2	3	4	20	40	80	120	160	200	240 or above
Malaria	12	1	4	3	0	2	2	0	0	0	0	0
Eosinophilia	2	0	0	0	0	1	0	0	0	0	0	0
Small-pox vaccination ..	1	0	0	0	0	1	0	0	0	0	0	0
Leprosy	10	0	0	0	0	0	1	0	0	0	0	9

occurrence of this has been recognized by most leprologists. It has also been generally acknowledged that the cutaneous type of the disease gives rise to false positive reactions much more often than the neural type. The Kahn verification test (the triple quantitative technique followed by the salt dispersibility technique described by Kahn (1944)) was performed in ten cases with a positive standard Kahn test. Seven out of these ten showed the false positive type of reaction ; the other three revealed a combination of false positive and luetic types of reactions. The quantitative titres with the serial dilutions of sera with 0·9 per cent. saline varied from 4 to 240 units as shown in Table II. Seven out of these cases showed titres of 40 or more. This was unlike the low titres usually observed in sera showing false positive reactions in malaria, small-pox vaccinations, and eosinophilia as shown in Table II and described elsewhere by the writer (1947, 1948) in detail.

The quantitative titres with the serial dilutions of sera with distilled water were also much higher than were observed in other conditions exhibiting false positive reactions, as shown in Table III.

During work with sera from malaria, eosinophilia, and small-pox vaccinations, it was found that false positive reactions in these diseases are usually associated with low titres (4 Kahn units or less). This however, has not been so with leprosy, in which higher titres have been met with.

TABLE I

WASSERMANN REACTION AND KAHN TEST IN SIXTY-FOUR CASES OF LEPROSY

Type of leprosy	No. of cases	Wassermann reaction						Kahn test						No. of cases	Combined Wassermann reaction and Kahn test				
		++ or +±		+		±		Negative		++++ or +++		++		+ or ±		Negative			Positive in one or both tests		Doubtful in one or both tests		Negative in one or both tests	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		No.	%	No.	%	No.	%
Both lepromatous and neural ..	64	14	21·8	5	7·8	7	10·9	38	59·3	13	20·3	4	6·2	10	15·6	37	57·8	64	24	37·5	9	14·06	31	48·4
Lepromatous ..	45	14	31·1	3	6·9	7	15·6	21	46·6	12	26·6	4	8·8	10	22·2	19	42·2	45	21	46·5	9	20·0	15	33·3
Neural	19	Nil	—	2	10·5	Nil	—	17	89·4	1	5·2	Nil	—	Nil	—	18	94·0	19	1	5·2	2	10·8	16	84·2

The Wassermann reaction was done by Wyler's modification of the Harrison technique, using three and five times the minimum hæmolytic dose (M.H.D.) of complement in the test.

++ = 3 doses and five doses of complement fixed.
+± = 3 doses fixed and five doses partially fixed.
+ = 3 doses fixed and five doses not fixed.
± = Partial fixation of three doses only.

The standard Kahn test was performed and the results were recorded according to the procedure laid down by Kahn (1928).

Summary

Results of Wassermann and Kahn tests in sixty-four cases of leprosy have been tabulated. Kahn verification tests were performed in ten of these sixty-four cases. The quantitative titres with the serial dilutions of sera with 0·9 per cent. saline and distilled water respectively were found to be comparatively higher than those observed in sera showing false positive reactions in malaria, small-pox vaccination, and eosinophilia.

I take this opportunity to thank Dr. D. S. De Simon, Medical Superintendent, Leprosy Hospital, Hendala, Ceylon, the medical officers attached to the hospital, and Sergeant Jansen, Ceylon Medical Corps, without whose co-operation it would not have been possible to take up this inquiry.

References

Kahn, R. L. (1928). "The Kahn Test." Baillière, Tindall, and Cox, London.
——(1944). "Technique of the Standard Kahn Test and of Special Kahn Procedures." University of Michigan Press, Ann Arbor, Michigan.
Singh, B. (1947). *J. Indian Army Med. Corps*, **3**, 186.
——(1948). *Indian Med. Gaz.*, **83**, 77.
——(1947). *Ibid.*, **82**, 609.